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3 FEB 1958

Mr. Klaus Knorr
Center of International Studies
Princeton University
Woodrow Wilson Hall
Princeton, New Jersey

Dear Mr. Knorr:

Thank you most kindly for your letter of 24 January and the enclosure "Is the American Defense Effort Enough?".

I hope to read the material at an early date and will pass it along to [redacted] 25X1A

It was certainly good to see you again and I hope to attend more of these meetings.

Sincerely,

Allen W. Dulles
Director

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FILE

PRINCETON UNIVERSITY
CENTER OF INTERNATIONAL STUDIES
WOODROW WILSON HALL
PRINCETON, NEW JERSEY

January 24, 1958

Mr. Allen W. Dulles, Director
2430 E Street, N. W.
Washington, D. C.

Dear Mr. Dulles:

I feel that we who called attention to the urgent need for a limited-war capability the other evening in Princeton did not state our case as clearly as we should have. I am taking the liberty of enclosing a memorandum I recently wrote in which I deal, among other things, with this issue. Of course, I realize that you have far more to read than you are able to cope with, and I apologize for even suggesting that you look at this piece.

Sincerely yours,

Klaus Knorr

Klaus Knorr
Associate Director

Enclosure
KK:hw

IS THE AMERICAN DEFENSE EFFORT ENOUGH?

By KLAUS KNORR

Center of International Studies
Princeton University
FREDERICK S. DUNN, *Director*

Memorandum Number Fourteen

IS THE AMERICAN DEFENSE EFFORT ENOUGH?

by Klaus Knorr

CENTER OF INTERNATIONAL STUDIES

Frederick S. Dunn, Director

Princeton University
December 23, 1957

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Contents

I. Introduction

Even before Sputnik began to whiz around the earth, the American people had good cause to ask whether their defense effort was enough for reasonable safety.* Year after year, the Russians had been surprising the West with the speed at which they improved their military technology. The Soviet Union developed fission and fusion bombs, and modern fighters and bombing planes, more rapidly than had been anticipated. And in 1957, instead of merely catching up with American advances, the Russians suddenly moved ahead of the United States in the successful testing of ballistic missiles and, of course, in the fielding of earth satellites. These were not isolated scientific and technological achievements. The Russians are as advanced as, or more advanced than, the United States in the construction of cyclotrons and electronic computers, and they lead in the development of giant jet airliners. While they seem to lag far behind in durable consumers' goods, they appear to be doing exceedingly well with projects on which they concentrate.

Until Sputnik entered the scene, Washington had responded to Soviet technological advances by reassuring itself and the country that, as before, the United States held a decisive military edge over the USSR. During the summer of 1957, at the very time when the government had learned of the successful testing of an Intercontinental Ballistic Missile (ICBM) in Soviet Russia, the Department of Defense launched a frantic effort to reduce the rate of military spending and pressed forward with plans to pare the manpower strength of the Armed Services. This ruthless exercise in retrenchment was undertaken avowedly for economic and financial reasons. Insistent demands for reducing the federal budget and paving the way for a cut in federal taxes, a campaign to diminish inflationary pressures in the economy, and the firm reluctance to permit federal expenditures even temporarily to pierce the statutory ceiling of 275 billion dollars set on the national debt, all these objectives provided the motive power behind the economy drive. When Moscow announced the successful launching of an ICBM, and our leaders observed that it would take the Russians several years before the experimental design would be developed into, and mass-produced as, an operational weapon, it occurred to few commentators, at first, to ask the obvious question: if the Russians have beaten us in the race to produce an experimental model, are they not also likely to beat us in the production of operational ICBM's?

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* This memorandum is being published simultaneously as a Special Supplement in The New Leader. I am indebted to Professors Frederick S. Dunn and Bernard C. Cohen for helpful comments.

The complacent mood, which allowed repeated danger signals to be played down, was caught poignantly in a New Yorker cartoon showing a middle-aged and well-to-do lady remarking to her spouse: "Well, this has been a good week for everybody. The Russians got the ICBM and we got the Edsel." In view of gathering evidence of Soviet arms proficiency it should not have required Sputnik to disturb this mood. But it was for the earth satellite to shatter it. Sputnik had a dramatic effect. It was there for everyone to see, and could not be denied or ignored. It shocked the American public, and through it, the nation's leadership which, as before, was at first disposed to counter any alarmist sentiments with soothing reassurances. It was not before the middle of November that Washington admitted officially that the United States achievement in the missiles field was lagging by two or three years behind that of the Soviet Union.

Even though the public reaction was largely emotional, its strength is fully justified by a sober analysis of the facts. Shooting the first satellite into its orbit was more than a spendid scientific and technical achievement. What dismayed many western experts was not so much that the Russians were first than that the weight of the Russian "moons" was many times greater, and their orbit farther out in space, than those of the projected American satellite. These facts have several meanings. The immediate, though not the potential, military use of earth satellites is probably negligible. But Sputnik confirmed that the USSR had developed rocket engines of more powerful thrust, and better electronic guidance systems, than had the United States up to that point; and this is of immediate importance in long-range missile development. More important, Sputnik dispelled a persistent illusion about western superiority in science and engineering, and forced the West to discard an obsolete image of Soviet capability. The consequences are not exhausted by a puncturing of technical conceit and by the jolting loss of prestige. The main point is that the Soviet earth satellites, along with other evidence, discredit the belief that the vast manpower resources of the Communist world can be balanced by the technological superiority of the West. Even though the overall Russian performance in all scientific fields, military and civilian, is still appreciably behind the American, the gap is closing and the Soviet Union is sparing no effort to close it in areas important to military power. It is on the traditional belief in the backwardness of the USSR that much of the defense planning in the West has been based, and that many countries placed their hope in the ability of the United States to protect the free nations of the world. The apparent Soviet capture of the technological initiative seemed to reveal to some neutral as well as allied nations that their security was founded on illusion.

While the anxieties generated in the United States by the Soviet Union, then, are far from groundless, this reactive mood is, unfortunately,

focussing on American missile progress to the virtual exclusion of other components of our military posture. Indeed, there is a grave danger that increased expenditures on missiles will be offset, in some part at least, by further cuts in this country's ability to conduct limited wars. What is urgently needed at this time is not a frantic imitative response on the part of the United States, but a searching reappraisal of the entire defense effort. Five basic questions--interrelated but separable--should lend focus to this reappraisal. What is the world military situation which the United States must meet by its own military stature? What kind of military posture, and what kind of grand strategy, are required by this situation? What are the costs of an adequate defense effort, and how much of a burden can the American economy stand? Is the American defense effort handicapped, not only by an insufficiency of resources allocated to it, but also by the inefficiency with which the allocated resources are actually employed? Finally, how much priority does the American public want to give to provisions for national security?

In taking up these questions, the following discussion is necessarily selective. It focusses on what are perceived to be some of the major issues confronting the American defense effort, and it ignores such important problems as the NATO relationship, international arms control, and the American position in waging the Cold War.

II. The Military Situation

Soviet Hostility

The starting point of any analysis of the world military situation is the implacable hostility of the Soviet Union against the liberal, democratic and capitalist West. The Russian rulers continue to affirm their belief that the Communist system will eventually engulf the whole world, that this expansion is part of an inexorable historical process, and that it is their mission to abet and exploit the forces of revolution. This doctrine does not mean necessarily that they expect to conquer in war. Thus far, the record of Soviet Russia has been mostly one of military caution. The Kremlin may hope that the military power at its command will neutralize that of the West, and prefer to expand the sway of Communist rule piecemeal and chiefly through diplomacy, propaganda, subversion and--in the economically underdeveloped world especially--also through economic help and the attraction of the Soviet model for rapid industrialization.

The West, however, has no assurance that the USSR will stick to "peaceful" but highly competitive co-existence. The Soviet record

also shows that Moscow is far from averse to using military force, including the threat of military action, whenever doing so seems to involve little risk to its own security. During the Suez crisis of 1956; again in response to the American policy of sending atomic weapons to NATO countries; and, finally, as part of Moscow's stand in favor of Syrian "independence" in the fall of 1957, the USSR uttered sharp threats of atomic and rocket retaliation. It is precisely in order to deny the Soviet Bloc the opportunity for military blackmail and conquest that the West must build up sufficient counter-force.

We need not assume that Soviet hostility and imperialism are forever inevitable. Like any other society, Soviet Russia is subject to change. Any dependable change in Soviet behavior, however, will be very slow in coming and short-run changes must be discounted. Mere protestations of peaceful intentions are likely to express no more than a tactical maneuver. Mere changes in the personalities of the leaders will mean little as long as the present system remains essentially intact. Nor can much store be set on any sudden crisis of leadership, for internal weakness may lead to a sharpening rather than an abatement of external aggressiveness. Dependable change in Soviet foreign policy can result only from profound changes in Soviet institutions and attitudes, and such changes take a long time to mature. Even if we perceive present trends indicating such basic change, as some of our analysts do, we must assume, for the time being, that these trends are tenuous, subject to abrupt reversal, and of uncertain consummation. Much as we hope for such changes, to be on the safe side in so momentous a matter, we must assume that intense hostility to the West is still, and may be for a long time, central to Soviet motivations.

From the military point of view, the United States is, in Soviet eyes, the kingpin of the Western world; for these two countries dwarf all others in military power. At present, only the United States can check the thermonuclear air power of the USSR. Nor does any country along the long periphery of the Sino-Soviet Bloc possess conventional forces strong enough to resist for long a determined Soviet-mounted offensive. If the Soviet Union, whether acting directly or through proxy, is to be stopped from conquering outlying areas by local aggression, the non-Communist world must organize sufficient counter-force; and whether this is done through the United Nations or not, it has become increasingly clear that only the United States can be effective as the organizer, and that only this country has resources sizable enough for operating militarily over far distances. The simple fact is that there are only two world military powers today: the USSR and the United States.

Soviet Strength

If the United States needs military power in order to protect its own territories as well as forestall a development condemning it to live ever more precariously in a shrinking island within a spreading Communist world, its military effort must obviously be related to Soviet military capabilities (primarily Russia's but secondarily, and over time increasingly, those of the entire Sino-Soviet Bloc) for attacking, or threatening to attack, the United States and other critical areas the non-Communist world. The problem of the American effort is one both of structure and overall scale. What kinds of forces are required, and how powerful should these forces be? Since, in both respects, American needs are governed largely by the structure and scale of the Soviet military effort, it is important to notice the wealth of resources--manpower, economic, scientific and administrative--which the Soviet Union is now devoting to the build-up of its military power and is likely to devote to it in the future.

Indisputably, the Soviet leaders give a high and firm priority to military effort and the totalitarian system of government puts them in a position to impose this priority on Soviet society. Their successive plans for industrialization, showing a major emphasis on heavy industry, have always been directed, in large part, to providing the industrial underpinning for military strength, whereas compared with the American economy, the Soviet economy is far less directed toward satisfying consumers' wants. Although Russia's Gross National Product is at present only somewhat over a third of the American GNP, the Soviet Union is believed to spend a larger proportion of it--perhaps half again as large--on defense than does the United States. Furthermore, Russia gets out of each defense dollar a great deal more military worth than is the case in the United States because she spends far less on pay, subsistence and safety of military personnel and because, at the expense of consumer goods industries, she employs her most productive resources--the best workers, managers and scientists, and the best equipped factories--in the defense sector of the economy and gives it overriding priority in the distribution of scarce materials and parts. Hence, with a far smaller national income, the real resources allotted to defense by the USSR may fall little short of the American allocation.

In 1957, the GNP of the USSR was growing at an estimated rate of about 7 per cent a year which compares with somewhat less than 4 per cent in the United States. It is probable that the Soviet rate of economic growth will slow down somewhat in the future, as it has in recent years, and it is possible that the Kremlin will find it politically expedient to do appreciably more for the Soviet consumer than it has done in the past. The resulting pressures would reduce the ease with which further

resources can be released for use in the military sector. However, unless the Soviet rate of economic growth slows down substantially and soon, and unless consumers can make their demands a great deal more effective politically than they have so far, the USSR may divert a persistently increasing volume of resources to the military sector, and it may thus intensify the pressure exerted on the United States and its allies. As long as Russia's rate of economic growth remains higher than the American, she may be able to maintain roughly the present proportions in the allocation of income to defense, investment and consumption and thus expand military expenditures while at the same time diverting more to her consumers.

Since the military race may be to the technologically swift, it is worth stressing the two factors which may enable the Soviet Union to excel in this area of endeavor. First, and this is common knowledge by now, the Communist leaders are fully aware that we are living in a scientific age. They are firmly dedicated to exploring the endless scientific frontier, and they are sparing no effort to multiply the numbers of their scientists and engineers, and to improve their training. There is an impressive array of evidence according to which this Soviet effort has in recent years surpassed that of the United States. Second, and to refer once more to the wisdom of the New Yorker, while American brains and talent are diverted largely to the development and merchandising of Edsels, and the entire range of consumers' goods and services, the Russians put the best of their comparable resources to work on ICBM's, Sputniks and the basic sciences that feed technological advance. With the balance of military power in the long run resting in large part on the balance of scientific and technological capacity, this Soviet emphasis on science and engineering may again entail increasing military pressure on the West. Though the technological base of the United States still exceeds the Russian, our scientific base is becoming weaker than theirs.

Finally, in the efficient use of resources allocated to the military sector, Soviet Russia enjoys the advantage accruing to the potential aggressor provided it is clear to her, as it is to us, that she in fact occupies that role and that the United States does not. Since calculated aggression is unacceptable in the United States, this country cannot pick the time and mode of a military initiative and employ its resources in large part toward that end. If the Russians know this to be so, they are able to exploit the benefit of their initiative and enforce on the United States the far less efficient course of preparing for a wider range of eventualities. Whether they will actually be able to do so depends, of course, on many contingencies, including the counter measures of the West.

Weapons Technology

Technologically, the world military situation is dominated by thermonuclear bombs and the various means for their delivery on target. This development has crucially changed the military problem from what it was before and during the last two world wars. The advent of these weapons systems has several important implications. First, there is the new and awesome dimension of destructiveness as is indicated by the facts that it takes only a single hydrogen bomb in the lower megaton range to equal the total destructive power of all bombs dropped on all belligerents during World War II, and that such a bomb releases, after all, about a thousand times more destructive power than the one dropped on Hiroshima.

Second, for purposes of all-out nuclear war, these new weapons systems have given the offensive a tremendous advantage over defense. At present, any known means of defense against nuclear-bomb carriers promise so low a rate of attrition on these vehicles that the aggressor can easily offset their effect by somewhat increasing his offensive capability. Better and reasonably cheap means of defense may be developed in the future, but are not now in sight; and while prospective losses to life and property could be cut by a considerable margin through a dispersal and, especially, the hardening of targets, by means of shelters, feasible measures along these lines cannot avert catastrophic destruction through heat, blast and radiation.

Third, one reason for the difficulty of defense, namely, the speed and range of modern bomb carriers, has vastly reduced the protective functions of time and space. The decisive blows in total war will fall within a matter of days or weeks. Defense through deterrence, therefore, must rest entirely on mobilized forces ready for instant retaliation.

Finally, scientific and technological development in the weapons field is now taking place with a speed unequalled heretofore. Not only does this make the military sector more voracious of highly skilled personnel and other scarce resources essential to research and development; and not only has this speeded up the rate with which new arms become obsolescent, thus increasing the military demand for industrial resources in general; the speed of technological improvement has also made military planning more difficult and costly than it was in the past. In the first place, such planning has become more complex since it must provide adequate defenses at different points in time with the weapons of 1958 probably no longer efficient in 1961, with those projected for 1961 possibly no longer efficient by 1964, and with a lead-time of several years before new weapons move from the drawing board or laboratory into serial production and operational use. In the second place, the competitive

technological scramble has increased the factor of uncertainty with which the military planner must cope. The weapons which a country plans to have available a few years hence must not only be better than the ones now in use, they must also be better, equal to, or an effective counter to the arms which a prospective enemy may have available at that time. While it is difficult enough an intelligence task to ascertain and evaluate the weapons now in the hands of prospective opponents, this task is obviously harder when it comes to speculating on enemy weapons and their performance in the future.

Types of War

In addition to uncertainty in arms technology, there is the further, though not of course unrelated, uncertainty about the types of warfare which are likely to occur in the future. The problem is one of definition and of the assignment of probabilities. There is general agreement that a massive and prolonged war of attrition fought with pre-nuclear weapons is highly improbable today, if only because this kind of war implies war objectives of so high a priority, such as invasion and occupation, that belligerents, if pressed hard by their opponents, could not be expected to forego the use of more effective weapons in their arsenals. The unlikelihood of all-out thermonuclear war breaking out depends chiefly on the balance of mutual terror and on the capacity of nations to avoid the accidental precipitation of this type of war.

At present, most experts assume that--now and in the foreseeable future--both the United States and the Soviet Union are able to inflict so high a degree of nuclear destruction on the other that neither country will deliberately initiate unlimited war. It cannot be taken for granted, however, that this parity of deterrent power will necessarily endure. Neither Russia nor the United States will dare to fall behind in offensive and defensive capacity by a margin which, given war aims of cardinal importance, would keep the probable losses of the war-initiating power within the range of acceptability. But there is no assurance that such an upset in the balance of effective terror will not occur. The danger that all-out war will be started by the irrational action of a madman is probably small. The knowledge of what thermonuclear retaliation will do to one's own country has a chastening effect not only on individuals but also on societies. This should give societies a far stronger interest, than in the past, to keep madmen from the controls. Nevertheless, there is a danger of thermonuclear war breaking out inadvertently. Thus, a limited war may gradually degenerate into a total contest; or a nation may precipitate an all-out attack for fear that its opponent is about to do so and would then gain the advantage of striking the first blow; or at a time of grave crisis, a false alarm may set off the retaliatory mechanism.

The capacity to prevent the accidental outbreak of total war rests in each nation on strength of motivation, which may be supplied by the fear of being itself subjected to unacceptable devastation; on the vulnerability of its means for retaliation, for this will affect the fear of absorbing the first blow; on administrative competence, e.g., effective arrangements for making military decisions; and on technological competence, e.g., the ability to sift false from true alarms.

It is the possibility of limited wars--ranging all the way from guerrilla activities and minor police actions fought with pre-atomic weapons, to fairly large and prolonged wars waged with atomic and/or pre-nuclear arms, but stopping short of the strategic bombing of the thermonuclear powers themselves--which presents the most difficult problems of definition and prediction. Clearly, such limits on the use of weapons can be effective only as long as war aims are limited, for instance, as long as war aims do not encompass the decisive defeat and occupation of either side to the conflict. Beyond this proposition, the problem of limited war has given rise to lively controversy. According to one school of thought, anything more than a brief and small encounter in a peripheral area of conflict is likely to end up in total war. No doubt, it is reasonable to assume that this danger will be the greater, the larger and more prolonged is the limited war. Yet the magnitude of the risk would seem to be primarily a function of the mutual balance of terror. If each party to limited war, or if the losing party in limited war, faces unacceptable losses in total war, the limits are likely to stick. There is also a school of thought according to which limited wars fought with tactical atomic weapons are bound or likely to progress to the unlimited stage, especially because of technical difficulties in setting and imposing the limits. Again, the presence of the risk must be conceded. But it also seems once more that the danger is in inverse proportion to the fear of both sides, or of the major power losing the limited engagement, of becoming involved in unlimited hostilities. In either event, the inherent risk of an accidental breach of the limits originally set to the form of conflict depends chiefly on the circumspection with which the major belligerents control their behavior, and communicate this restraint to their opponents.

Condition of Uncertainty

Even this very summary discussion reveals that, in many respects, the present military situation differs radically from what nations faced in previous periods. This condition greatly reduces the opportunity of learning from past experience. The overwhelming impression is that we are face to face with uncertainty. There is technological uncertainty; there is uncertainty about the shape of future wars, and about the limits that can be imposed on them; there is uncertainty about how nations will react to

the opportunity presented by a sudden, though temporary, technological superiority or, on the other hand, to the danger presented by a sudden, even though temporary, technological inferiority; and there is uncertainty about how nations will react to nuclear threats to themselves or to their allies. Nations may learn how to condition the risks flowing from these uncertainties. Yet unquestionably, the military planner faces a task of exacting difficulty as well as frightful consequence. This inherent predicament of planning is brought out still further as one ponders alternative strategies for defense.

III. The American Response

Phase of American Ascendancy

The main trend in American defense planning since the last war has been a progressive cutback, only interrupted during the Korean War, in the country's "conventional," i.e., pre-atomic, forces and, correspondingly, a growing concentration on strategic airpower. This policy was defended on the grounds that the new nuclear weapons reduced the need for sheer masses of military manpower--a component of strength in which the West was considered unable to match the Soviet Bloc--and that economic reasons demanded selective concentration on the essential elements of military strength. The policy, and the military doctrine in which it is rooted, looked persuasive as long as this country possessed, first, the monopoly and, thereafter for a time, a vast superiority in nuclear bombs. Even during this period of technological and military ascendancy on the part of the United States, it was doubtful whether official doctrine and policy made sufficient allowance for limited-war situations in which it would have been morally difficult and politically unwise to rely on nuclear arms. These and other doubts became far more pronounced as the phase of a decisive American superiority in arms technology drew to a close.

By 1957, the United States was reforming a considerable proportion of its surface forces for fighting limited nuclear war, but this shift did not suspend the trend toward diminishing military manpower. In order to keep defense expenditures from rising above the $38 billion-a-year limit, Secretary Wilson ordered a reduction of 100,000 men by the end of the current fiscal year and referred to further plans for reducing the total strength of the armed forces to 2,500,000 men by July 1959. The cuts fell largely on the U.S. Army; and while army and navy units were being converted to atomic war, it was inevitable, under the circumstances, that American forces for conventional warfare shrank persistently. In the Navy, the last battleship was put in mothballs and the Sixth Fleet, though possessing a respectable nuclear punch, had few planes and few men

for engaging in conventional combat. At the same time, two infantry divisions were to be inactivated by the Army and one of its armored divisions cut to a combat command, to leave a total of 15 divisions by the fall of 1957.

Phase of Thermonuclear Stand-off

Whether this cutback in conventional strength, and the establishment of a small capability for fighting limited nuclear wars, gives the United States a sufficient choice of military responses was bound to become a major question once the Russians were believed to be able, or nearly able, to threaten the United States with thermonuclear devastation.

Whether a thermonuclear stand-off has actually been reached may remain controversial. Modern weapons systems are so complex, future war conditions so uncertain, and intangible factors, such as morale, so unpredictable, that it is most difficult to measure the present balance of thermonuclear airpower with any degree of precision and certitude. In all probability, United States airpower is today still superior to the Russian; and, despite Soviet advances in missiles, this condition may last for another few years. But this relatively small and probably diminishing margin is not a consequential factor in the effective balance, and this not so much because the Kremlin is generally conceded the advantage of striking the first blow and thus the chance of destroying part of this country's ability to retaliate. The decisive point is that, exact equality of power or not, the USSR has now, or will soon have, the capability of crippling the United States, inflicting tens of millions of civilian casualties and destroying or paralyzing the bulk and heart of its economy. By the same token, if our pessimistic interpreters are right in believing that, within two or three years, its missile superiority will give the USSR a considerable edge over the retaliatory power of the United States, this is not a matter of major consequence as long as this country retains the capacity, even after enduring a surprise attack, to cause unacceptable damage to the Russians. But on either assumption, the United States must now review its grand strategy for defense, for it can no longer rest on a decisive superiority in thermonuclear airpower. If a new strategy is called for, it will take several years before a revised policy is formulated and then translated into the hardware and trained personnel of a readapted defense establishment. In the new circumstances, limited war may well be the most likely form of future warfare. Indeed, the next step in our analysis is to demonstrate that the question of a grand strategy for the defense of the United States and the West must be considered an open one, that no one choice is obviously right, and that this very dilemma of uncertainty must, to a considerable extent, determine the American response.

Search for a Grand Strategy

There can be no question but that the United States must maintain its strategic air arm in a condition able to threaten the Soviet Union with unacceptable losses and thereby to deter the Kremlin from precipitating or risking unlimited war. In view of recent Soviet progress, the accomplishment of this objective alone is no mean undertaking. Success will not be guaranteed by clinging to the self-image of scientific and technical leadership. The United States will have to speed up the development of its offensive delivery system and do much more than has so far been needed to protect SAC against surprise attack. At the same time, it might be a gross error for the United States to react to the Russian missile lead by putting an overwhelming emphasis on overcoming this particular lead or on gambling on an attempt to recover a decisive superiority over Soviet Russia in thermonuclear striking power. The question now is whether it is safe for this country to limit itself primarily to this one major military stance. Should the United States rely so largely on one single instrument for protecting its interests that may be at stake in a great variety of military and political circumstances?

According to the doctrine of massive retaliation, as announced by Secretary of State Dulles in January 1954, the United States was then ready to threaten the commitment of its nuclear airpower whenever Communist local aggression, presumably by conventional forces, could not be thrown back by the forces of the attacked country, reinforced possibly by small contingents from the rest of the free world. As far as this policy contemplated the possible use of SAC against the Soviet Union itself, it rested on the decisive American superiority in thermonuclear airpower over the USSR. But as the Russians approach the United States in this power, this policy becomes more dangerous and possibly ineffective. It becomes more dangerous because the chance of unlimited war coming about inadvertently will inevitably tend to increase with the number of times the United States is willing to move to the brink of all-out conflict. It becomes possibly ineffective because, facing the prospect of severe mutilation by the Soviet air force, the United States will become reluctant to risk its population and industrial centers in the face of minor aggressions, a change of attitude which would hardly surprise or escape the Kremlin.

Under these circumstances, the Soviet Union may well feel tempted to create and exploit limited war situations to a greater extent than it did in the past unless the non-Communist countries find a means for deterring local wars other than by the United States threatening a course of action which, while inflicting disastrous punishment on the aggressor, accepts roughly the same punishment for

the United States itself. Secretary Dulles addressed himself to this problem in a new statement in October 1957, [1] reopening the question of strategy. He seems to propose that, while in the past the threat of massive retaliation was needed to deter Soviet conventional aggression, in the future this deterrence will result from the West's new capacity in tactical nuclear weapons. However, Soviet Russia will hardly content herself with strategic airpower and conventional forces. It is known that she has already begun to equip herself for tactical nuclear war; and even though she may at present lag behind the United States in the development of a broad range of tactical nuclear weapons, it is surely an illusion to believe that she may not catch up in substantial measure.

In that event, the United States cannot be sure of its ability to use tactical nuclear arms to deter local aggression or, should it occur, stop it in its tracks. Nor can it be sure, in that event, that local engagements can be kept small and short, unless the local balance of tactical nuclear power favors the defenders. As has been the case with conventional forces for some time, this leaves open the question of whether the West is able to muster sufficient counter-force. For the United States, this means, among other things, whether it will have enough mobile forces in readiness to support local defense forces in any area whose defense is critical from the viewpoint of American interests.

Massive Retaliation?

As it becomes widely realized that the USSR has not only acquired the ability to bring thermonuclear devastation to the American homeland but, in addition, is maintaining large forces both for limited nuclear war and conventional war, in most important areas superior to what the West has at its disposal now, the temptation may be great to scurry back to the single stance of massive retaliation. There are some cogent arguments for such a course. It is certainly cheaper in terms of resource requirements to rely on one weapons system; it seems a rational decision to those who doubt that anything but the smallest brushfire can be kept from unleashing strategic airpower in any case; and it looks like the only practicable strategy to those who despair of the West's ability to meet the Soviet Bloc on any level of warfare requiring large masses of military manpower.

It might be argued against this position that the alleged inability of the West to organize sufficient opposition on the level of limited war

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1. John Foster Dulles, "Challenge and Response in United States Policy," Foreign Affairs, XXXVI, (October 1957).

does not, of course, result from a comparative paucity of resources but from a lack of will to commit an adequate proportion of its resource wealth to this purpose; and that it should not be taken for granted that the democratic countries are incapable of meeting this challenge once the need for doing so is made sufficiently clear. But the main argument against relying on massive retaliation for deterring (but hardly winning against?) all Communist aggression beyond the smallest border skirmishes is that the United States would then gamble the survival of the West either on Soviet fear of retaliation or on Soviet forebearance and responsibility. No matter what particular form Soviet aggression might take, the United States would command only one form of response. In every instance, regardless of locale and other circumstances, the United States would be forced to choose between walking to the brink of total war or leaving Soviet aggression unopposed. Can the United States count on always having the nerve, and can it count on its principal allies always having the nerve, to offer to the Soviet Union the threat of mutual destruction? And can we always count on the Soviet Union to let itself be deterred? Finally, the policy of massive retaliation is likely to increase the risk of all-out war being precipitated by inadvertence.

But what are the alternatives to the strategy of the single stance? Must the United States settle on such rigidity in its response?

Limited War Capability?

Assuming that an effective balance of mutual terror will deter resort to strategic nuclear forces by both the United States and the Soviet Union against one another, it is far from easy to indicate the kinds of defense which the United States should command. It is assumed, furthermore, that to deter aggression is the first object of American policy but that the achievement of this purpose requires the ability to beat back various types of aggression.

If we distinguish between different levels of war ranging from conflicts waged with conventional, i.e., pre-nuclear, weapons at the one extreme, to all-out thermonuclear hostilities at the other, we might locate in between two or more types of limited warfare fought with tactical nuclear arms scaled in terms of more or less rigorous limitations on weapons choice and target selection. The idea of such a differentiation has been made familiar by the school of thought that is advocating "graduated deterrence." For example, if there were another Korean war, one could in matters of target selection distinguish between using nuclear weapons in Korea only and using them also for destroying enemy airfields across the Yalu River.

However, whether this graduation of tactical nuclear war can be made to stick in practice, that is, whether operations on any lower level can be kept from ascending to the highest level of tactical atomic conflict, is a highly controversial question. There is no chance of making the distinction stick unless both sides to the conflict can, first, formally or tacitly agree on restricting their operations to any but the least restrictive level--an agreement involving questions of mutual interest, detailed operational definition and effective communication--and, second, have sufficient administrative control over the activities of their armed services. Should graduated deterrence prove impractical, we are reduced to three levels: conventional, tactical nuclear and unlimited war. Waiving this problem of progressive differentiation, the following discussion will proceed on the assumption of only three levels although it could be readily adapted to a situation of more choices.

In order to deter aggression, and to defeat it should deterrence fail, the ideal inventory of defense capability would seem to include a sufficiency of force at the level of limited war least disadvantageous to the United States and, above this preferred level, a force sufficient to deter the opponent from raising the ante. The opponent will accept defeat (that is, limited defeat) at the level preferred by us only if he must expect greater losses from a relaxation of the prevailing limits on warfare.[2] But the ability to threaten the enemy with unacceptable losses on a level above the preferred one is obviously not enough unless the United States and its allies are strong enough to avert defeat on the preferred level.

If aggression cannot be deterred altogether, which level of restricted war should be preferred by the United States (assuming that unlimited nuclear war is not the preferred level of conflict unless this option becomes the only alternative to surrender because the defensive position of this country, or the West as a whole, becomes hopeless on all lower levels)?

It is possible but, despite Mr. Dulles' assurances,far from certain that tactical nuclear war (or any particular level of it) is for the United States the preferred level for deterring or fighting limited engagements, even if the possibly conflicting interests of this country's allies could be disregarded. Indeed, to this and related questions, there is not now and probably cannot be an obvious and clearcut answer. If one expects the Russians to equip themselves likewise with the technological means for conducting tactical nuclear operations, and does not

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2. Cf. George W. Rathjens, Jr., "Notes on the Military Problems of Europe," forthcoming in World Politics, X, (January 1958).

as a matter of course assume that the United States will be technologically superior in this respect, the United States and some of its allies must possess a substantial capacity of this kind in order to deter or repel Sino-Soviet aggression. It may not even be true that such a capability will require a much smaller input of military manpower than conventional surface forces do. In part, the numerical strength of the tactical nuclear force would be a function of the size of the Soviet forces, of the relative mobility of the Soviet and American forces, of the troops required for supply and for otherwise servicing large masses of complicated gear, and--very importantly--of replacements for casualties that might be very large. And even if there should be a saving in sheer numbers of military manpower, the total effort of providing a tactical nuclear capability of sufficient size may equal or indeed exceed that of providing a conventional capacity because the real resources to be expended on both training and equipment per man for tactical nuclear conflict will probably surpass such expenditures per head for a conventional fighting force.

Aside from the probability that a tactical nuclear capacity is not a cheap substitute for a conventional one, the level of war for which it is required may or may not put the United States at a greater advantage, or at a lesser disadvantage, vis-à-vis the Soviet Bloc than the level of conflict waged with pre-nuclear weapons. Where the comparative advantage lies for the United States hinges on a variety of conditions that are hard to predict. Much depends, for instance, on the actual limits observed in a tactical nuclear conflict, for the United States might face an intractable problem of supply, should the Russians be free to attack American supply lines on land and sea. To give another example, the United States might be dealt a serious blow in international politics if it were to counter conventional aggression, especially in peripheral areas, by a nuclear riposte. Furthermore, since the limits on conventional war are far easier to define, and hence to enforce, than the limits on tactical operations, conventional engagements are less likely to end up inadvertently in unlimited hostilities. This may well be a crucial consideration.

Whatever the level of limited war preferred by the United States, the need to impose this preference on a prospective enemy raises further problems of great complexity. Of course, no need for enforcement would arise if both the United States and the USSR have a strong interest in limiting warfare to the same level, a condition which is likely to prevail, at least for some time, as far as progression to totally unlimited war is concerned. Yet suppose the interests of the two powers diverge. If tactical nuclear war is its preferred level, the United States must yield a sufficient deterrent on the strategic nuclear level to keep the adversary from raising the ante to unlimited war should he face defeat on the level preferred by the United States. On the other hand, if con-

ventional war were the level preferred by this country, any enemy option for the tactical atomic level would have to be denied either by an American ability to cause the enemy equally or more unacceptable losses on the higher level, or--going one step further--by throwing in the threat of unlimited war. To use the latter enforcer would be much cheaper in terms of defense outlays but the risk of increasing the likelihood of all-out war breaking out would have to be set against this saving.

The entire problem is somewhat different for the countries in western Europe and elsewhere along the periphery of the Sino-Soviet Bloc, for they are potential theaters of hostilities in the event of limited war. Few, if any, of them can hope, on their own, to stop Soviet military aggression on any level. If they cannot expect help from outside, their best strategy, if they do not prefer surrender, is to rely on strategic nuclear power provided they are able to supply themselves with the necessary weapons system, to protect it from elimination by surprise attack, and hence to threaten the aggressor with enough destruction to make local aggression unprofitable.

Only the countries participating in an alliance with the United States have a wider range of choices. They need not, of course, maintain a strategic nuclear deterrent of their own as long as the American deterrent is sure to be used for their protection--a condition, however, that may not always prevail as a matter of course. Assuming that it does prevail, they might not, at first sight, prefer preparations for tactical nuclear war, for if aggression is not forestalled, and they are likely to become the theater of operations, they may expect an unacceptable degree of devastation. Based on this expectation, they might prefer either the threat of massive retaliation by the United States against the Soviet Union in the event of Soviet aggression against their own territories--the chance that New York and Detroit are obliterated rather than Paris and Essen--or a level of limited warfare, e.g., conventional hostilities, likely to be least harmful to themselves. Though exercising the first option would allow such countries to slight their own defense effort, and spare them a high degree of devastation, should the American threat fail to deter the Communists, they would also have to accept the prospect of conquest by the Soviets in this event.

A further grand strategy open to the allies of the United States is to fall in with this country if it chooses to establish a solid capability for waging limited nuclear war; and this despite the prospect of crippling destruction should such a war actually take place and be fought on their own territories. The rationale for such a choice would lie in the purpose not of waging such a war but of deterring it, as well as any serious aggression on the lower level, with a high degree of confidence by maintaining a capacity clearly superior, in all critical areas, to Soviet

means for waging limited conflicts. The drawback of this strategy is a large outlay of resources by the United States and its allies.

The actual choice of our allies depends in large part on American policy and hence can, to some extent, be influenced by the United States. Contrariwise, whatever strategy these countries choose, and the choice may vary for different countries and for each country over time, it cannot help but complicate the task of American defense planning, for the United States can hardly afford to ignore the preferences of its chief allies.

Two conclusions stand out on this matter of searching for a sound defense policy. First, American planning has almost certainly gone too far in cutting ready surface forces, particularly in the Army, for deterring and fighting limited war. In addition to strong pressures favoring a lower defense budget, this neglect resulted from a time lag in recognizing and adjusting to the new situation in which the United States no longer possesses a striking supremacy in thermonuclear airpower. Second, --and this is the main purpose of the foregoing exercise--it should now be clear beyond the slightest doubt that laying down a sound strategy for defense in this world of rapid change is a task of inordinate and, perhaps, intractable difficulty. The crucial problem remains that of uncertainty. Uncertainty in so many respects would present no trouble if the United States were able to afford unlimited resources for defense and hence could prepare itself for all contingencies. Yet the need to select and discriminate cannot be avoided; and there can be little confidence, in these circumstances, that any simple strategy adopted will guarantee the security of this country. Whatever direction is chosen for the effort of the United States, there will be an inescapable chance that it is riding for a fall.

Air Defense?

The ability to fight abroad is by no means the only capability puzzling American planners. In some degree, home defenses against thermonuclear air attack must supplement the maintainance of offensive forces for all-out and limited war. The United States has made considerable efforts to improve its active air defense, with the protection of SAC bases receiving a high priority; but extremely little has been done in civil defense, passive defense (dispersal and hardening of civilian targets), and in preparing the country for recovery from large-scale destruction.[3] Even

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3. For a searching inquiry into the problem see Civil Defense for National Survival, Hearings before a Subcommittee of the Committee on Government Operations, House of Representatives, 84th Congress, Second Session, Parts 1-7, (Washington), 1956.

though an unlimited thermonuclear assault on the United States must be expected to mutilate this country beyond recognition and confront the surviving population with unprecedented problems of survival and recuperation, this neglect of air defense can be defended. First, there are now no known technological means for defense against modern planes and missiles good enough to afford anywhere near the high degree of protection feasible against air attack during the second World War. Second, any high degree of passive defense, through the dispersal or hardening of civilian targets, is not only extremely costly but would also require intolerable changes in the peacetime life of the population. Third, in view of the technical superiority of offensive airpower over all known defenses, it is relatively easy and cheap for a prospective enemy to counter costly defensive measures by a marginal increase in his offensive capability. Fourth, under these circumstances, there is a good deal to be said for allocating additional resources, if still needed, to the American capacity for retaliation--present and future--and thereby deter any prospective aggressor from launching an all-out attack.

However, this justification for the present policy depends in no small measure on the precise use this country expects to make of its strategic air arm. The decision to slight efforts on active and passive defense is more likely to be sound if the United States expects to use SAC strictly for deterring unlimited aggression by the USSR. It is less likely to be sound if the United States freely employs the threat of its nuclear airpower to deter Soviet Russia from limited aggression and walks to the brink of war with considerable frequency. Such resort to SAC's punch must to some extent increase the probability of unlimited war breaking out, if only inadvertently. A strategy of relying so heavily on strategic airpower may warrant a relatively smaller outlay on tactical surface forces designed for limited war, but it hardly justifies the neglect of air defense at the same time. Since to maintain strategic airpower is an absolute must, there is some logic in seeing air defense and a limited-war capacity as competing claimants on defense resources; and there is a strong presumption that the neglect of both, as the United States has done in recent years, is hard to justify.[4]

There are further reasons for favoring an investment in a degree of air defense which is marginal yet a great deal more substantial than has been attempted so far. A hardening of civilian targets by means of a shelter program for reducing casaulties at the periphery of bomb bursts, where heat and blast have spent most of their force, would involve heavy but not intolerable expenditures of perhaps from ten to forty billion dollars over a number of years, depending on the degree of marginal pro-

4. See Malcolm W. Hoag, "Is 'Dual' Preparedness More Expensive?," Bulletin of Atomic Scientists, Vol. XIII, No. 2, (February 1957).

tection that is desired. Such a program could not prevent huge casualties but it might save as much as one-third or more of the population otherwise doomed to death or injury. An effort in this direction would be a partial insurance against the risk, however small it is hoped to be, that unlimited war will break out. It would also assure the Kremlin that the United States means business and will not flinch in the face of Russian threats.

The question of how large a proportion of defense resources should be channelled into research and development for active air defense likewise cannot be considered settled in favor of a relatively modest effort. At the present time, the development of an efficient anti-missile as well as an efficient antiaircraft system still faces forbidding scientific and technological obstacles. Yet Research and Development, especially if backed by a greater effort, may show up better prospects in the future and, as is fairly obvious, if either the United States or Soviet Russia succeeded in developing an efficient system, such a shift in the balance of technology would confer an inestimable advantage in the strategic balance, at least for a time, in the successful country.

If the American response to the Soviet military challenge is wanting in depth--chiefly because the use of science and technology for defense is insufficient--and in breadth--chiefly because, in the face of strategic and technological uncertainty, we do not maintain a wide enough choice of military reactions--why has there been this lack? The answer to this question is necessarily complex and only some of its strands can be identified and examined in this memorandum. For some purposes perhaps, for example in the pursuit of pure science, the United States faces an absolute shortage of resources. Viewing the entire demand for resources, however, this is hardly a major factor, for this country is much wealthier than Russia in virtually every line. The main problem, then, is knowing what to do--the question of a realistic defense doctrine, admittedly perplexing as the foregoing discussion has attempted to show--; diverting enough of this total wealth of resources to the defense sector; and employing the resources so diverted with reasonable efficiency.

IV. The Economic Load

Next to the question of doctrine, the allocative problem must be given first rank. The problem is chiefly one of relevant attitudes. One of these, complacency, has been underscored in recent months. Of the others, the most important ones are the fear that an excessive allocation of resources to defense will undermine the soundness of American economy, the gnawing doubt that the military manage the resources allotted

to them with circumspection and efficiency; and finally, the public's reluctance to pay the tab for a large defense effort. All of these attitudes come seriously into play because defense costs in the modern age are inordinately high.

The High Costs of Defense

Compared with previous periods of formal peace, recent American defense costs have been fluctuating about a very high level. From 1930 to 1939, the United States spent on the average a little over 1 per cent of its GNP a year on national security. Even in 1939, with war imminent, the share-out was a little under 1.5 per cent. In contrast, the outlay on national security (including atomic energy and foreign military aid) averaged 6.5 per cent during the four years from 1947 to 1950 and, following the extraordinary expenditures at the time of the Korean War, nearly 11 per cent during the three years from 1954 to 1956. Several factors account for this "quantum jump."

First, the sharp rise in defense costs reflects in large part Soviet pressure and the bipolar structure of world military power which puts on the United States the main military burden in the defense of the West. Old mainstays, such as the Royal Navy, serve no longer to protect the security of this country. Second, effective security now rests overwhelmingly on ready strength rather than, as previously, on a war potential to be mobilized in time of emergency. Whether it is for deterring all-out nuclear attack or repelling local aggression, the need is for forces instantly on hand. Third, technological progress has greatly raised the skill and hardware needs of the armed forces, with planes being much more expensive to produce and maintain, and crews much more expensive to train than formerly, etc. Fourth, the extraordinary quickening in the pace of weapons development not only demands large and increasingly large resources for research and development, it also subjects expensive equipment, and the skill to use it, to an unprecedented rate of obsolescence. To render existing weapons obsolete is the very purpose of Research and Development, and the need for doing so is compelling if Soviet technological competition is to be met.

These four conditions alone have greatly revolutionized the nature of the security problem confronting the United States. Yet there is still a fifth factor, perhaps of more obscure implication, but certainly no less telling in its effects. This factor is the inescapable need to cope with uncertainty. As was pointed out above, we are facing an unusual technological uncertainty and, as will be observed below, we are under the pressure of economic uncertainty. Above all, there is strategic uncertainty, that is, there is no obvious answer to the question of which kind of military posture the United States should favor, and it is therefore desperately difficult to decide how much would best be spent on SAC,

on limited-war capacity, of what kind, or on civilian and active air defense. Since there is a limit on the total effect the United States is able and willing to make, the need to choose is unavoidable; and since our capacity to predict what structure of forces will be needed is much more limited under present than it was under past conditions, any decision entails a large risk of being proven faulty in the future. For example, future events might present us with frightful consequences if the United States put defense resources overwhelmingly into the strategic airforce and starved its ability to cope with limited wars by limited means; and if an overemphasis on civilian air defense came to impair SAC, the consequences might be similarly calamitous. And even if the planners could be sure of having made the right forecast in 1957, which they can hardly be, they cannot hope that the forecast will stand in 1958 or 1959, for the conditions of strength and weakness in the Soviet orbit and in the rest of the world, and our knowledge of them, are incessantly in flux. Rather, efficiency demands the constant readiness to revise all choices in response to changing circumstances.

The Problem of Choice and Uncertainty

Nor does this kind of uncertainty confound the planner only on the level of general strategy. The problem of prediction and choice appears on numerous levels throughout the military establishment. How much more should we spend on increasing the mobility of our ground forces? How many more aircraft carriers should we construct, and how many submarines capable of launching rockets? How many fighter and bombing planes of any particular type should we manufacture at any one time, when improved types are already on the drawing boards? What proportion of defense funds should be allocated to research, how much to basic research, how much to the improvement of weapons likely to be out-of-date three or four years hence? How much should we spend on developing guided and ballistic missiles as against manned aircraft? How much should be spent on radar screens as against shelters, how much on stockpiles? The list of choices seems endless. But all the choices must be exercised and, once made, questioned and, if necessary, revised with an abiding view to maximizing the contribution our total outlay makes to the country's safety.

This formidable problem of prediction and choice has three weighty implications. First, many of the choices to be made may have awful consequences. They may seriously, or even disastrously, affect the future survival of the nation. If we shift too large a proportion of our funds from plane and missile production to research and development, we may find ourselves at a critical moment without enough serviceable planes and missiles, for prototypes cannot fight. If we economize excessively on Research and Development, including basic

research, we may discover some day that the Soviet Union has achieved a technological breakthrough in a weapons system which renders our forces in being obsolete. If we are parsimonious about active and civilian air defense, and the Big Deterrent fails to deter, we may have caused the death of millions who might have survived. If we economize excessively on mobile surface and tactical air forces (including a large airlift capacity) that are able to do combat in local wars, we may see Communist rule expand by means of military blackmail or local warfare because we hesitate to unleash an unlimited nuclear war of mutual destruction.

Second, and to repeat, many of the fateful decisions are extremely hard to make. Even our information on current Soviet intentions and capabilities is subject to marked error and, at the high level of policy-making, even firm estimates may be disregarded because their implications go against the grain of established assumptions and preferences. But the allocative choices on defense that we make today concern future contingencies, and our ability to predict future situations in all relevant aspects is utterly inadequate. It is certainly less dependable than officials of the Defense Department let on when they justify important decisions. To the best-informed persons it must inevitably appear that the probability of error is substantial and inescapable. In short, the risk of making wrong decisions is as great as the consequences of wrong decisions are perilous.

Third, throughout the military establishment, there is a lengthy lead time, often stretching over several years, before decisions on the development of weapons or new fighting units yield new military power ready for immediate use. It took six years for the B-52 to move from the drawingboard stage to that of combat readiness. It takes a long time from the initial decision, to man, equip, and train an airborne division. This lengthy cycle in the production of modern military forces means that many errors in deciding on the size, composition and equipment of the armed services cannot be quickly retrieved.

The triple fact that, in making important decisions on defense, errors are likely to be frequent, fateful, and, except over long time-spans, irrecoverable clearly underscores the need for prudence. The price of gambling is formidable. We must not dare to assume that we are able to predict with any degree of precision the size and kind of military defense which will give us any desired degree of security in 1959 or 1964, and proceed to cut out forces, weapons, and research programs which, according to the prediction, we will not need. In the face of uncertainty, prudence requires that we insure against error, that we cover several bets on decisions involving high stakes. This is what the Soviet rulers are doing. Recognizing that protracted land wars of attrition are

unlikely and that tactical nuclear weapons will not permit the massing of huge land armies, they are reducing the number of their divisions. But unlike the United States, they are maintaining a highly versatile and balanced military establishment, giving them a considerable choice of military initiatives and responses at any time and in any area of strategic interest to them.

Like all insurance, insurance against errors in preparing for our defense costs money. With any given degree of intelligence in making decisions, the less we spend on defense, the harder become our choices and the more we must rely on our frail capacity to foresee the shape of the future. There is general agreement on the need to maintain the Big Deterrent. But the more we limit the total resources we allocate to defense, the larger a share it tends to absorb and the less is available for surface forces or civil defense. In the thorough-going Senate hearings on airpower in 1956, it was pointed out that the directives of the Secretary of Defense to the armed services concerning defense expenditures in fiscal years 1956 and 1957 abounded in words such as "eliminate," "reduce," "curtail," and "postpone." It must be expected that such pressure to economize will compel difficult and very risky choices on research, inventories, and dozens of other things which may subsequently prove to have weakened our national security.

In conclusion, the larger the total resources we make available, the less the risk that we will find ourselves ill-prepared to safeguard our future chances of survival. Not even the United States can protect itself against all future contingencies. But cutting down to absolute "essentials" is risky in view of our limited ability to define what the absolute "essentials" are, the dangerous consequences of erroneous definitions, and the difficulty of recovering fumbles.

V. How Much Can the Economy Stand?

Fear of Weakening the Economy

With defense making necessarily huge claims on the nation's resources, it is not surprising that a further element of uncertainty has confounded American planning for defense. Is the American economy able to stand so large a strain year after year for a presumably indefinite period? The recent disposition to cut outlays on defense was given some urgency by the hostility of the Congress to permit even a temporary breaching of the statutory limit on the federal debt and by the determination, especially strong through the first three quarters of 1957, to reduce inflationary pressures. Yet the main economic concern has been rooted in the profound fear that the American way of life is threatened, in a more fundamental way, by economic deterioration from within as well as by aggression

from without, and that too large a defense budget will undermine the health of the economy. President Eisenhower and numerous other officials have voiced this anxiety repeatedly.

Unfortunately, there are no ready answers to the question of how large a burden of defense the economy can "stand" over a long period of time. In view of the potency of this anxiety, it is still more unfortunate that the people voicing it have not so far attempted to arrive at as cool and sensible an appraisal of this danger as is possible under the present state of our admittedly imperfect knowledge. Few of the officials concerned ever trouble themselves even to define what they mean by a "sound economy" or to explain in a meaningful way how a rise in defense expenditures by a few billion dollars would subvert the economy. Nor is this a new impediment to rational choice. In 1948, for example, President Truman decided that the defense budget for fiscal 1950, the last one preceding the Korean War, be kept down to $15 billion, although Secretary Forrestal and the service chiefs wanted at least $18 billion. Though other reasons were advanced to justify this economy move, President Truman and Mr. James Webb, Director of the Bureau of the Budget, leaned heavily on the argument that a defense budget of $15 billion was about all the economy could stand, and this argument made a strong impression on Secretary Forrestal, General Bradley, and others. $15 billion amounted then to about 5.5 per cent of the Gross National Product. In the event, after the Korean War broke out, defense expenditures rose above $50 billion, amounting to over 14 per cent of the GNP, with results that, by any acceptable standard, failed to wreck the American economy.

Yet, in 1956, this same anxiety aroused sharp fears about the soundness of our defense plans, lest defense expenditures rise steeply in fiscal 1958 which, if we expect the GNP to run to about $430 billion, would claim 11 per cent of this amount. The obvious need is to "educate" this fear, to make it more informed by exploring the ill effects which alternative levels of defense outlays may cause to the economy, and push this exploration with as much determination as we should apply when inquiring into the effects of alternative levels of military preparedness on the nation's external security. To do so is admittedly difficult. Indeed, the strong conviction with which many people anticipate debilitating effects of large defense outlays on the economy stands in striking contrast to the scarcity of empirical knowledge about such effects.

In the response to any level of defense spending, one distinction must be kept from befuddling the issue at the outset. Two questions are involved. First, do we personally like to bear our share in the tax burden involved even though there be no subversion of the nation's economy; and, second, even though we are not personally opposed to bearing our share in the tax burden, is it undermining the health of the economy? No

doubt some people who do not wish to have a large proportion of their incomes taxed away, use the "sound-economy" argument in order to make their opposition on the first score respectable, to themselves if not to others. But the two responses turn on altogether different issues and may well differ regarding any proposed level of spending.

There should be general agreement on the proposition that a soundly functioning American economy exhibits the following three characteristics: (1) major inflationary and deflationary cycles are avoided while there is reasonably full employment; (2) the present balance between private and public economic decisions is not seriously upset, and (3) and most important, saving, investment and innovation keep the economy growing in productive power so that the real Gross National Product keeps rising by at least 3.5 per cent a year.

Economic Consequences of Large Defense Budgets

Now, the danger that large defense budgets result in monetary instability or in a substantial spread of new federal controls over economic life, hinges primarily on the public willingness to be taxed. The security benefits which various levels of defense expenditures can buy take the place of benefits from private or other public expenditures which could have been made instead. It is for the American electorate to weigh and compare these sets of benefits in the light of the information available to it. The ensuing choice will be recorded through the political process. Ordinarily, this decision will touch on the functioning of the American economy under only one major circumstance, as long as full employment prevails. Wanting both to have the cake and eat it too, the public might wish to spend more on defense than it is currently willing to pay for by foregoing other uses of a corresponding portion of its income. In that event, inflationary pressures may result and, if prolonged and severe, these will obstruct the efficient operation of the economy and, by encouraging the use of direct governmental controls over the private use of resources, disturb the operation of the relatively free economic system.

Since the defense effort now needed is of indefinite duration, sound policy requires it to be put on a pay-as-you-go basis. It is for the government to gauge the spending level which the public is willing to put up with, and should this level fall appreciably short of what is required on military grounds, it is for the nation's leadership to explain to the public why larger outlays must not be shirked.

This still leaves the problem of whether, or to what extent, a persistently large defense effort will clog the sources of growth in the American economy. Indubitably, this is a significant problem, for the defense effort rests in large part on the economy, and whatever the security burden imposed on it, they can be borne more easily if the GNP keeps rising

rapidly and with some steadiness. A $500 billion economy gives the United States more strength on which to draw than a $400 billion economy.

The school of thought fearing that defense outlays at recent levels do serious harm to the economy, suspects that the onerous tax load involved dulls the income incentives behind hard and productive work, enterprise and investment, and diminishes the ability as well as the willingness to save. The problem is one of the total tax burden in relation to the national income and of the specific tax structure on the basis of which revenues are collected.

Concerning the first problem, there is thus far no empirical evidence for the fear that a defense effort absorbing between 10 and 12 per cent of the GNP will act as a perceptible drag on American economic growth. Ever since defense outlays and taxes were lifted to very high levels at the time of the Korean War, the economy has been blessed by satisfactory rates of saving, investment and innovation. Such intensive studies as have been made of persons in high income brackets, though not entirely conclusive, have revealed a great deal of grumbling over high tax rates but, in the aggregate, only a negligible slackening of productive effort.[5] Moreover, when taxes bear down on the receivers of middle incomes, their aggregate response has apparently been to increase effort in order to maintain fairly rigid expenditure patterns involving insurance, homes, education, vacations and durable consumers' goods that have become an important determinant of social prestige.

It is, of course, conceivable that, regardless of the particular tax structure, the total tax load could be raised to a level that would impair incentives and diminish the ability to save. Nobody, however, knows at what level these harmful effects would become substantial. It is surely plausible that there is no sharp breaking point--say, a specific percentage of the national income claimed by taxes--at which these effects would become suddenly important. One would rather expect that, once generated, these effects would at first be marginal and mild, and increase only gradually if the tax burden were raised progressively. It also seems reasonable to conclude that the total amount of taxes now collected is one which the American economy can absorb without becoming debilitated, and that a somewhat larger burden--for example, another two or three per cent of the GNP--is fairly safe. Much of the complaint about high taxes

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5. Cf. J. Keith Butters, "Taxation, Incentives, and Financial Capacity," and John Lintner, "Effect of Corporate Taxation on Real Investment," both in American Economic Review, Papers and Proceedings, (May 1954), pp. 504-534. See also G. F. Break, "Income Taxes and Incentives to Work," The American Economic Review, XLVII, (September 1957), pp. 529-549.

simply expresses the understandable preference of citizens to spend more of their incomes for private rather than public purposes.

Whatever the total burden of taxes, however, it is the tax structure which has an independent and important bearing on income incentives and on the public's capacity to save. It is generally agreed that the American tax system is antiquated and inconsistent, and understandable only in terms of the political pressures that shaped and reshaped it over time. Extremely high marginal taxes on corporate and individual incomes have encouraged practices which, affording some escape from the bite of the tax collector, lead to uneconomic uses of resources, a diversion rather than impairment of effort, and cause serious inequities besides. It is possible that this tax structure has somewhat retarded, though not, of course, prevented American economic growth in the recent past; and since such dampening effects might become more disruptive if the total volume of taxes is increased, for purposes of defense, a review of the federal tax structure should receive a high priority. The appearance of any substantial disincentive effects could be further retarded by reducing tax rates on large incomes and tightening the sprawling system of tax exemptions. A structure of taxation designed to encourage economic growth would counteract the risk that higher levels of defense spending than prevail now might subvert the American economy.

Finally, whatever the strain which a large defense effort may place on the economy, it must not be forgotten that its consequences are not all injurious. Some of the beneficial consequences are, to be sure, conditional on other circumstances, as when a high level of federal spending sets limits to a decline in general business activities. But there are also byproducts of a large defense effort which, though hard to trace and impossible to measure, are unconditional and significant. For one thing, defense-supported training of skilled manpower and investment in plant have expanded this country's capacity to produce at an accelerated pace, and not all of this expansion is in lines useful only to defense. For another, and more importantly, defense expenditures have hurried the development of atomic energy, electronic computation, aeronautics and many other products and productive techniques. No doubt, this extra spur to science and technological advance has yielded vast benefits, and these benefits are looming much larger than they did in the past because an increasing share of the defense dollar finances research and development.

To conclude, it is most improbable that defense spending in the neighborhood of the current scale, between 9 and 12 per cent of the GNP, will ruin the American economy. There is some risk, but a risk only gradually increasing, of a net damage to the forces of economic growth

if taxes were raised above this range; and this risk could be minimized by adapting the tax structure to the promotion of growth. The current fear of this risk seems exaggerated and should not stand in the way of some increase in the defense effort provided this is clearly required on military grounds. Moreover, that, in the event of need, some felt risk to the economy's functioning be accepted is no less rational than accepting less than adequate security against external aggression. At the present juncture, the United States seems to be running a far greater, and far more dangerous risk, in being insufficiently prepared for defense than in undermining its economy.

VI. Efficiency in Managing the Defense Effort

Two further considerations militate against making adequate provision for the defense of the United States. One is the deep-seated civilian suspicion that the military are always asking for too much and that it is safe, therefore, to apply, almost automatically, a sizeable discount to their requests. But though this suspicion should not be relinquished, it is not at all clear that it should inspire more than prudent probing. The military cannot be relied upon to ask for too much at all times. Furthermore, the organization of the Department of Defense has greatly strengthened civilian leadership and responsibility, the Bureau of the Budget plays an important part in checking budget requests,and the National Security Council offers a further opportunity for examining military requests. To be sure, the effectiveness of these safeguards depends in no small measure on the personalities occupying the key positions. To reduce this particular weakness, and especially to make Congressional review more effective, a great deal is to be said for presenting budget requests first of all in terms of military missions--strategic airpower, capacity for limited war, civilian defense--and only secondarily in terms of the traditional breakdown by the three armed services.[6] This woul show, to a greater extent than is the case now, just what kind of military strength the proposed budget dollars are expected to buy.

Waste of Defense Dollars?

The other consideration follows from the persistent feeling among civilians that the military are wasteful with defense dollars and that a great deal more "defense worth" could be financed with available or even smaller funds if only the management of the defense effort were more efficient. To analyze the management performance of the military, to pursue

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6. Cf. Arthur Smithies, The Budgetary Process in the United States, New York, 1955, Part Four.

their ways of spending funds on numerous administrative levels and for numerous purposes, and to suggest how present practices could be improved, would be a task of formidable complexity, going clearly beyond the scope of this brief survey and, more important, requiring a body of knowledge so vast and difficult of access, that few single individuals could manage it. The purpose of the following remarks is more modest and, at the same time, more fundamental. It is to inquire into the nature of the problem rather than to take up many specific instances of mismanagement and reform.

Measured by some ideal standard of performance, or even by the actual standards of efficient business corporations, the management of the defense dollar is inefficient beyond doubt. Yet these criteria are of dubious relevance; and to accept the fact that what looks like gross inefficiency by these standards is not necessarily inefficiency in a military service, is probably the most important step toward sober appraisal. For example, a military inventory of seemingly lavish supplies may, upon serious inquiry, turn out not to be lavish in view of the uncertainty with which the military must be prepared to cope. They must be ready to act with dispatch at unforeseeable times, in unforeseeable places, and under unforeseeable circumstances. A business corporation, which runs the risk of insufficient inventories, runs the risk of lesser profit. An inventory failure of the military may have serious consequences to the nation's security. In other words, the degree and range of uncertainty, and the entirely different character of the risks involved, makes the concept of efficiency used in business largely inapplicable to military management.

Of course, this is not to say that military spending is actually being managed with efficiency or that, on some levels and for some purposes, sound principles of business management and accounting do not apply. But to discover the place for improved practices, and to introduce them, must surely be part of the civilian responsibility in the Department of Defense, for the training of the military is, after all, not primarily in methods of management and accounting. On the other hand, the application of better management procedures must largely remain in military hands and, to prepare them for this, would seem to call for some relaxation of the tradition which leads officer personnel to be re-assigned every three years. With the increasing technical complexity of military tasks, an extended degree of specialization among the military is inevitable; and, excepting tradition, there is no reason why a proportion of officers should not specialize in military management tasks and receive the same professional rewards enjoyed by other officers.

Cutting Fat?

In the past, the favorite method of enforcing economy on the military has been to slash appropriations "across the board" by some arbitrary

figure, usually dictated by fiscal and, ultimately, political considerations. As experience has demonstrated again and again, this is by all odds the most inefficient civilian method of improving military management. In such attempts at "cutting out fat", which no doubt is there, a great deal of "muscle" is bound to be removed along with the fat. There may be some immediate gain in terms of budget dollars but the meat ax approach is hardly designed to make for efficiency and usually entails substantial budget increases later on when the economy drive has been revealed to jeopardize the country's security. An alternation of budget cutting and crash programs is inevitably wasteful.

The reason for the failure of this approach lies in the very fact that the military establishment lacks the administrative capacity and the internal unity, the time and the incentive to spread overall budget cuts with a fine discriminating eye so that they fall on the expenditures marginally least essential to defense. And if the Office of the Secretary of Defense tried to practice such discrimination itself, and prescribe in detail which expenditures were to be reduced by how much, it would become quickly apparent that the accounting and management job involved called for a huge administrative effort and, for purposes of information and enforcement, for a disruptive intervention into service practices.

The meat ax approach has a further drawback. Repeated experience has led the military to expect economy drives from time to time and, in their adjustment to the familiar feast and famine cycle, they are naturally disposed to overstate their essential requirements so that enough "muscle" is likely to survive each campaign. Clearly, this defensive reflex acts as a major impediment to more efficient management. Furthermore, on the administrative levels at which the elimination of uneconomical practices must be carried out, there is little incentive to do so because any savings are returned to general funds. This means an essential lack of incentive. For example, an obsolete program of weapon development or a wasteful inventory practice in a particular service is much more likely to be abandoned if the released funds become available for research and development, or for inventories, in the same service, or the same service unit. Although "incentive budgets" would not result in the immediate saving of defense dollars, they would improve the efficiency with which these dollars are being employed. Indeed, this suggests a further point worth highlighting. To equate inefficiency with wasting dollars means attachment to an insufficient concept of efficiency. At a time of stupendous technological flux, sluggishness of response to new dangers and opportunities is as important a measure of inefficiency as wasting dollars. Waste of time, rather than of dollars, may be the primary weakness of the Pentagon.

Reorganizing the Military Services?

A great deal of service inefficiency is rooted in the uncertainty regarding the best grand strategy for the United States at the present time. The lack of an accepted military doctrine has fanned much of the interservice rivalry which has been causing some waste, though not uncompensated by benefits, especially in weapons research and development. If there were an agreed doctrine and, hence, an acceptable definition of military missions and roles, the heat of this rivalry would no doubt decline and the task of managing the defense dollar be eased.

Some critics propose bluntly that the present division of the defense establishment into three (or four) services has become wholly obsolete and should be done away with at once. This position has some merit, not in the sense that one monolithic service should be set up, but in the sense that the country needs a new breakdown of functions better related to the tasks of modern warfare--strategic airpower, capability for limited war, and air defense. Yet the proposed step also suggests the bull in the china shop. Aside from the fact that some interservice rivalry concerning doctrine and weapons development is productive, because it acts as a competitive spur to achievement, an abrupt abandonment of the traditional services could not help but lower officer morale, demand a formidable amount of legislative and staff work, divert attention from urgent issues of defense, and disrupt the operation of established administrative machinery. None of these costs can be afforded at a time of almost continuous external crisis. The better method, it seems, is to proceed gently and do so along functional lines, step by step. The problem is to merge certain service functions that offer the least resistance and the largest payoff, and then re-decentralize them on a new basis.

Weapons Development

Some parts of weapons development should be favorite candidates for a partial reorganization of functions. The now crucial process of weapons development, it seems, is unduly slow, not so much because of interservice rivalries, but because the administrative machinery within each service is too complex and cumbersome--requiring numerous committees and commands to review a new weapons idea before it comes to a final decision--often after as much as three years--on whether or not to proceed to a development project. If the Russians continue to best us, and best us by a large margin, in the number of years it takes for a new weapon to move from the conception of a new idea to serial production, we are more likely to lose the technological race. Soundness of decision is, of course, as important as speed. Yet the swiftness with which the technological, and hence the military balance of power can shift, demands that

the process be accelerated; and, instead of tinkering with existing machinery, it might be better to discard it and establish a new one by creating a set of commands on the basis of the types of military missions that are now relevant.

There is an alternative to this recommendation. Weapons development also appears to suffer from a lack of imagination as long as it is primarily entrusted to the military. Again, there is a reason for this which is not, as such, discreditable. Since the services must be prepared against all military eventualities at all times, they tend to cling to weapons systems which are tested and with which they are familiar; and, less creditable, though still understandable, there is the reluctance, mostly subconscious, to embrace innovations that foreshadow painful readjustments of doctrine, organization and traditions. The pilot may well be disturbed by missiles which he cannot ride. As the experience with the Office of Scientific Research and Development during World War II suggests, this situation might be corrected by handing over the initiation of radically new weapons--as distinct from marginal improvement of existing arms--to a civilian agency in the Department of Defense. But to make such an agency effective, it would have to be given not only formal authority but also an appropriate share in the defense budget so that it would not depend for funds on the armed services. A civilian agency, moreover, would be less likely to be stingy on funds for basic research. This is another deficiency that might prove fatal, for the more basic science is carried on, the greater is the chance of a fundamentally new weapons system that might, for a time at least, alter radically the existing balance of military power.

If these proposals have merit, it may prove feasible to combine them by arranging for close cooperation between the civilian agency and the new functional commands. Under the proposed scheme, however, the various combat units would, as before, belong to the traditional services for purposes of administration, training and supply.

In the letting of development contracts with private firms, two practices are in urgent need of review. In recent years, it has taken up to two years before weapons development contracts are negotiated to the point at which the private contractor can start with the job. The insistence of the services that they begin with complete and detailed specification of all parts in a complicated new weapon system, and that they must approve of all technical specification changes subsequently proposed by the private contractor, accounts for a goodly proportion of the time lapse. The remedy would seem to lie in a method by which the military would specify only essential performance, in the development phase, and leave the contractor free to find the materials, components and techniques by which the desired performances can be achieved.

Another practice in need of reform is the cost-raising tradition of the services--again understandable in terms of their aspiration to utmost dependability of matériel--to insist on equipment performance which, though very expensive at the margin, adds only slightly to dependability or versatility in combat use. Where large expenditures add only little to military worth, they should be foregone. By avoiding such "excessive specification", and also by abandoning the present cost-plus-fee contract--which gives the private firm too little incentive to cut costs--substantial savings might be achieved over time.

The contention is not that the above and similar remedies do not have drawbacks of their own. More detailed exploration is required before an estimate of net benefits can be made with some confidence; and, however good a proposed reform looks on paper, its administration is sure to be difficult. There are no easy answers to the problems of defense management. Yet in view of the grave issues at stake, this should not be allowed to discourage the search for better arrangements.

Whatever the specific problem, the central problem is, in any case, that sure and lasting improvement in defense management requires a fundamentally new approach. First, any move toward such improvement must begin with the political and administrative realities of the world in which the military operate. The frustrations suffered by the military at the hands of Congresses, Secretaries of Defense, and Presidents have caused the development of a set of defensive attitudes which are the most critical roadblock on the way to better management. These attitudes cannot be decreed or legislated out of the way. Rather, reforms should concentrate initially on new management techniques least likely to call these attitudes into play, and, by eschewing the meat ax approach henceforth, the country can encourage their gradual decline. Second, the search for improved techniques, adapted to the defense establishment, is far from easy. It will require patience and imaginative innovation;and, in large part at least, any initial survey should be carried out by joint teams of civilian specialists and military officers. If this view of the problem is correct, any real progress must inevitably be slow. But it would seem better to be satisfied with slow and sure progress than to insist on the technique of the sudden assault which, on the basis of the record, is highly unlikely to produce net benefits.

VII. The Political Requisite

If the present state of the American defense effort calls for a basic review; if there is need for a clarification of overall strategy,(or at least an efficient way of dealing with uncertainty); if it is time for a broad-gauged investment in scientific and technical training, for a tough-minded appreciation of what the economy can stand, and for a realistic

approach to the problem of military management; there is yet one prerequisite of success ranking above all these. This is a new political momentum and vision. And whether or not this momentum and vision will come forth is, of all the uncertainties with which the American defense effort seems to bristle, perhaps the least fathomable.

What is required is clear enough, and can be put in plain words. To do enough for defense under present conditions, demands from society a huge diversion of efforts which its members, naturally enough, prefer to devote to the pursuit of private ends. It means less consumption and more work, less freedom of self-direction and more attention to a part of reality which cannot help but induce anxiety. In short, it means giving up a great deal of what is worth defending in order to improve the chances of protecting the rest. What is at issue, moreover, is not a temporary effort, to win a war or weather a single crisis, but a sustained and, seen from the imperfect vantage point of the present, an indefinite effort. And this effort must come forth without anyone being able to prove compellingly that so much, and no less, is indeed a minimum for reasonable security; hence the temptation will always be there to do less and hope for the best--a temptation, incidentally, which the Communist rulers will try to manipulate to their advantage.

There are pessimistic observers who doubt that democratic societies--and especially societies so much given to the search for personal comfort and security--are capable of rising to the challenge and bearing the strain indefinitely. These skeptics fear that the future is with the harsh regimes of the Communist Bloc. But it cannot be said that the mettle of the western nations has as yet been tested. The general public in this country, and in the other western countries as well, is not aware of the general nature of the military problem confronting them.

The crucial function is that of political leadership. The security of the West may come to be in sorry straits if its leaders yield to the push and pull of a public--only partly informed of and, by disposition, largely reluctant to face the external danger--and accords to defense only what thought, energy and treasure it can spare from its devotion to domestic politics. In such circumstances, western leaders will not be permitted to demand the necessary sacrifices and demand these on the basis of a strategy that must cope with uncertain knowledge. The first prerequisite is for leaders of all kinds--no matter what party, interest group and ideological affiliation--to give priority to the job of coming to grips with the Red menace in all its forms--military, political, technological and economic. And this new momentum among the leaders can only spring from a new vision which, at this time of supreme crisis, sees external danger and the various means to avert it--science, innovation, economic growth, political responsi-

bility and moral commitment--as an integral part of life. Such a vision, the second prerequisite, will give steadiness of purpose which will do away with the risky dependence on Pearl Harbors, Koreas and Sputniks for provoking purpose belatedly, with the inefficient cycle of complacence and overreaction, and with the inability to seize the initiative instead of merely parrying the initiatives of the opponent. Only such a vision will yield a military stature in keeping with the enormity of the danger.

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